

Titanium

USSR

UDC 669.295.3

REZNICHENKO, V. A., and BURMISTROVA, T. M., Moscow

"Hydrometallurgical Processing of Cathode Products of Electrolysis of Titanium"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 45-47

Abstract: Titanium can be extracted from the products of electrolysis by hydrometallurgical processing, including water leaching and acid processing for final removal of fluorotitanate salts. Their removal involves the formation of secondary hydrofluoric acid, which dissolves the electrolytic titanium. The fluorine ion is bonded by adding aluminum chloride to the solution. This work presents a study of the specifics of the hydrometallurgical processing of cathode products when sodium fluorotitanate is used as one of the components of the electrolyte. It is concluded that these processes are approximately similar in nature and completeness for both sodium and potassium

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REZNICHENKO, V. A., and BURMISTROVA, T. M., Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 45-47

fluorotitanate, although the solubility of the salt products of electrolysis is somewhat higher when sodium fluorotitanate is used. This indicates that this electrolyte is preferable for electrolysis of oxide compounds of titanium.

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UDC 669.293.5'27

MOYNOV, S. G., REZNICHENKO, V. A., SOLOMONOVA, G. P., ULYAKOVA, R. M., and
YEGOROV, S. I., MOSCOW

"Production of Ti-W Alloys by Coreduction of Chlorides, and Some of Their
Mechanical Properties"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 1970, pp 26-32

Abstract: Results are presented of investigations on the development of a direct metal-thermal method of producing binary Ti-W alloys. The method involves diffusion of hexachloride tungsten in tetrachloride titanium and reduction of the solution by metallic magnesium. The quantity of tungsten chloride introduced into the solution is determined by the composition of the obtained alloy. As a result of coreduction of chlorides and subsequent vacuum separation of the products of reduction, a tungsten-doped titanium sponge is produced from which it is possible to obtain ingots with a uniform distribution of alloy component. Increase of tungsten content in the alloy up to 10 percent raises the tensile strength of titanium with insignificant reduction of ductility in the hot-forging state. A considerable effect of work hardening at room temperature can be obtained by means of heat treatment of Ti-W alloys. A considerable

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MOYNOV, S. G., et al, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 1970, pp 26-32

softening of the Ti-W alloys was observed in the 300-550° C temperature interval. In alloys with 6 and 10% tungsten at temperatures above 400°C an anomalous change in the magnitude of transverse reduction was observed, a fact which points to increased creep resistance of the alloys.

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172 019
UNCLASSIFIED
TITLE--SOLUBILITY OF ANHYDROUS MOLYBDENUM TRIOXIDE IN AQUEOUS SULFURIC
ACID SOLUTION -U-
PROCESSING DATE--13NOV70
AUTHOR--(03)-IRKOV, F.YA., PALANT, A.A., REZNICHENKO, V.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1354-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SOLUBILITY, MOLYBDENUM OXIDE, SULFURIC ACID, SOLUTION
CONCENTRATION, HEAT OF REACTION, TEMPERATURE DEPENDENCE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1416
STEP NO--UR/0078/76/015/005/1354/1358
CIRC ACCESSION NO--AP0135090
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135090

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE SOLY. OF MOO SUB3 DEPENDS ON H SUB2 SO SUB4 CONC. IN AQ. SOLN. AND SHOWS A MAX. AT 18-20 WT. PERCENT H SUB2 SO SUB4. WITH INCREASING TEMP., THE SOLY. DECREASES. A 1:1 COMPLEX OF MOO SUB3 WITH H SUB2 SO SUB4 FORMS IN THIS SYSTEM. DELTA HDEGREES OF THE REACTION OF MOO SUB3 WITH H SUB2 SO SUB4 IS MINUS 6.3 KCAL-MOLE.

UNCLASSIFIED

1/2 032
UNCLASSIFIED
PROCESSING DATE--13NOV70
TITLE--A STUDY OF THE ELECTRICAL CONDUCTIVITY OF TITANIUM SLAGS -U-
AUTHOR--(03)-DEGTAREV, V.S., REZNICHENKO, V.A., DENISOV, S.I.
COUNTRY OF INFO--USSR
SOURCE--IZVEST. V.U.Z., TSVETNAYA MET., 1970, (11), 43-47
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SLAG, TITANIUM, ORE BENEFICIATION, BIBLIOGRAPHY, ELECTRIC
CONDUCTIVITY, METAL MELTING, ACTIVATION ENERGY, IRON ORE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0550
CIRC ACCESSION NO--AP0124245
STEP NO--UR/0149/70/000/001/0043/0047
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124245

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ELECTRICAL CONDUCTIVITY OF TI
SLAGS OBTAINED AT VARIOUS STAGES IN THE ELECTRIC MELTING OF FE, TI
CONCENTRATES WAS STUDIED. THE CONDUCTIVITY WAS MAINLY OF AN ELECTRONIC
NATURE. THE SPECIFIC ELECTRICAL CONDUCTIVITY AND THE ACTIVATION ENERGY
ASSOCIATED THEREWITH DEPENDED BOTH ON THE TOTAL TI CONTENT AND ON THE
RATIO OF TI SUB2 O SUB3 PLUS TIO TO TIO SUB2. THE CONDUCTIVITY-TEMP.
RELATIONSHIPS ARE OF PARTICULAR IMPORTANCE IN DEVELOPING A METHOD OF
DIFFERENTIAL MELTING FOR FE, TI CONCENTRATES.

UNCLASSIFIED

1/2. 024

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--ELECTRICAL CONDUCTIVITY OF MELTS DURING THE REDUCTIVE SMELTING OF
TITANIUM CONCENTRATES -U-

AUTHOR--DENISOV, S.I., DEGTAREV, V.S., REZNICHENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR METAL. 1970, (1), 80-2

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--SLAG, ELECTRICAL CONDUCTIVITY, SMELTING FURNACE, TITANIUM,
TITANIUM OXIDE, MOLTEN METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1988/0540

STEP NO--UR/0370/70/000/001/0080/0082

CIRC ACCESSION NO--AP0105525

UNCLASSIFIED

2/2 024
CIRC ACCESSION NO--AP0105525 UNCLASSIFIED PROCESSING DATE--11SEP70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES WERE TAKEN FROM THE
FURNACE AT DIFFERENT TIMES DURING THE REDUCTIVE SMELTING OF FE-TI CONCS.
THE CONTENT OF FEO VARIED FROM 23.9 TO 3.77PERCENT, THAT OF TI SUB2 O
SUB3, FROM 0 TO 24-26PERCENT, AND OF TIO, FROM 0 TO 4PERCENT. THE
CHANGES IN ELEC. COND. OF TI SLAGS WERE DETD. AS A FUNCTION OF TEMP. AND
THE CONTENT OF FEO. DURING THE MELTING PROCESS, THE ELEC. COND. CHANGED
FROM 25-30 OHM-CM FOR THE INITIAL MELT TO 150-170 OHM-CM FOR THE SLAG AT
THE OUTPUT WITH 4-5PERCENT FEO.

UNCLASSIFIED

1/2 030

UNCLASSIFIED

TITLE--PREPARATION OF TITANIUM TUNGSTEN ALLOYS BY COREDUCTION OF THEIR
CHLORIDES, AND SOME MECHANICAL PROPERTIES OF THE ALLOYS -U-
AUTHOR--MOYNOV, S.G., REZNICHENKO, V.A., SOLONINA, O.P., ULYAKOVA, N.M.,
YEGOROV, S.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 26-32

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TITANIUM ALLOY, TUNGSTEN ALLOY, MECHANICAL PROPERTY, CHLORIDE,
BINARY ALLOY, METAL HEAT TREATMENT, MAGNESIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0539

STEP NO--UR/0370/70/000/001/0026/0032

CIRC ACCESSION NO--AP0105524

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105524

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW METALLOTHERMIC METHOD OF OBTAINING BINARY TI-W ALLOYS AND SOME OF THE MECH. PROPERTIES OF THESE ALLOYS ARE DESCRIBED. THE METHOD FUNDAMENTALLY CONSISTS IN DISSOLVING THE WCL SUB6 IN TICL SUB4 AND IN REDUCING THE SOLN. BY METALLIC MG. THE AMT. OF WCL SUB6 DISSOLVED DEPENDS ON THE DESIRED QUALITIES OF THE ALLOY. AFTER COREDN. OF THE CHLORIDES AND AFTER VACUUM SEPN. OF THESE REACTION PRODUCTS, A TI TUBE ALLOYED WITH W IS FORMED, FROM WHICH CASINGS CONTG. AN EVENLY DISTRIBUTED ALLOYING ELEMENT CAN BE OBTAINED. BY INCREASING THE W CONTENT TO 10PERCENT, THE BREAKING STRENGTH OF THE TI ALLOY IS INCREASED. BY HEAT TREATMENT OF THE TI-W ALLOYS, AN IMPORTANT IMPROVEMENT OF MECH. PROPERTIES AT ROOM TEMP. CAN BE OBTAINED.

UNCLASSIFIED

USSR

UDC 621.791.85

YEROKHIN, A. A., REZNICHENKO, V. F., and KERUDYSHEV, A. F., Moscow

"Efficiency of the Electron Beam Fusion (Welding) Process"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 131-133

Abstract: An investigation is made of the energy losses resulting from the effect of electron beams in the welding range. It is shown that in the case of deep penetration of fusion for beams with relatively large total and specific power, in order to explain the high efficiency of the process it is necessary, when estimating the energy losses by the theory of scattering and reflection of the electrons, to consider the thermal effect of the beam on the material causing the occurrence and development of a "channel" in the fusion zone. The interaction of the electron flux with the solid state is accompanied by a number of processes and phenomena whose qualitative and quantitative characteristics are determined primarily by such initial data as the parameters of the electron beam and the treated material. It is pointed out that the basic parameters of the beam are the energy and specific power, and of the material (as applied to metals), the atomic number and thermophysical constants.

Investigation of theoretical papers and experimental results on scattering of electrons in atoms shows that the majority of energy losses as applied to the weld zone belong to reflected (back-scattered) electrons. In iron, for example, ϵ_0
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YEROKHIN, A. A., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 131-133

[the energy losses to reflection of electrons] is about 20 percent of Q_e -- the energy of the electron beam at the bombardment point. The coefficient of reflection and mean energy of the back-scattered electrons do not depend on the process parameters and temperature of the metal, but are determined by the atomic number (nuclear charge) of the material bombarded by the beam. The estimated losses to radiation, x-radiation, and secondary and thermal electron emission demonstrated that the total energy losses do not exceed 10 percent of the total energy of the beam.

Graphs are presented of the efficiency of the fusion (welding) process as a function of the beam current, the shape factor of the weld, and the opening of the gap for accelerating voltages of 20 kv.

It is pointed out that the numerical values obtained as a result of the experiment are determined to a great extent by the parameters of the electron-optical system, the accelerating voltage, and the energy distribution with respect to the beam cross section. However, the nature of the relations is not retained throughout the entire weld zone. For thermal calculations during electron beam welding, it will be necessary to establish η_w (the effective efficiency) as a function of the concentration coefficient of the source as applied to various materials.

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Computers: Digital

USSR

KUL'BAK, L. I. and REZNICHENKO, V. M.

AN INFORMATION RETRIEVAL DEVICE

Moscow OTKRYTIYA IZOBRAZENIYA PROMYSHLENNYIE OBRAZTSY TOVARNYIE ZNAKI
in Russian No 2, 15 Jan 74 pp 151-152

[Abstract] (11) 411459 (21) 1658247/18-24 (22) 20.05.71 (51) G 06f 15/40
(53) 681.327(47) (72) (54) A device for information retrieval containing
shapers for the desired and current frame signals; the input to the first of
which is connected to the input of the device; an information carrier transfer
control unit, the output of which is connected to the input of the film unit;
a time analyzer; and converter is distinguished by the fact that the accuracy
of frame positioning is improved and the device is simplified by connecting
the output of the desired frame signal shaper to the first input of the time
analyzer, the second input of which is connected to the output of a converter
whose input is connected to the output of the current frame signal shaper,
the first input of which is connected with the second output of the desired
frame signal shaper, while its second input is connected to the output of the
film unit; the output of the time analyzer is connected to the input of the
information carrier transfer control unit.

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USSR

REZNICHENKO, V. M.

UDC 512.25/.26+519.3.330.115

"Minimization of Time of Input to Rhythmic Operation in the Problem of One
Machine Tool"

Sistemotekhnika [Systems Engineering -- Collection of Works], No. 2, Kiev, 1970,
pp 80-86 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971,
Abstract No. 4 V566).

No Abstract.

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USSR

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UDC 620.171.32:669.295
GUDKOV, S. I., LEBEDEV, D. V., and REZNICHENKO, V. V., Central Scientific
Research Institute of Ferrous Metallurgy

"Mechanical Properties of Oxidized Titanium Alloys at Low Temperatures"
Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 6, 1970, pp 23-26.

Abstract: An investigation was made to determine the effect of the oxidized layer on the mechanical properties of titanium alloys in the presence of stress concentration at -253 to 20°C. The chemical compositions of VT1-1, AT2, VT3-1, and VT5-1 titanium alloys are shown in a table. The preparation of samples and the test procedure are described. The sensitivity of alloys to stress concentration was evaluated by the strength of cut samples, and by the sensitivity to cuts. The expediency of surface strengthening of samples with strength concentrators, for the purpose of improving their properties at cryogenic temperatures, is demonstrated for the VT1-1 and AT2 alloys. Surface strengthening is not valid for alloys whose plasticity decreases with temperature. 1 figure, 3 tables, 10 references.

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"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002202630002-4

UNCLASSIFIED
TITLE--ROLE OF PHONONS IN THE STIMULATED EMISSION OF CDS SUBX NEGATIVE SE
SUB1 MINUS X CRYSTALS DURING TWO PHOTON EXCITATION -U-
AUTHOR--(03)-BRODIN, M.S., BUDNIK, P.I., REZNICHENKO, V.YA.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 710-15
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--LASER RADIATION, STIMULATED EMISSION, EMISSION SPECTRUM,
CADMIUM SULFIDE, SELENIDE, EXITON, PHONON SPECTRUM, CRYOGENIC PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/1984
CIRC ACCESSION NO--AP0105058
STEP NO--UR/0181/70/012/003/0710/0715
UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002202630002-4"

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CIRC ACCESSION NO--AP0105058
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. AT 4 AND 77DEGREESK,
INVESTIGATIONS WERE CARRIED OUT OF THE SPECTRA OF STIMULATED RADIATION
OF THE SOLID SOLN. CDS SUBX SE SUBNEGATIVEX OF VARIOUS COMPS. IN 2
PHOTON EXCITATION BY A RUBY LASER, AND THE CONDITIONS WERE ANALYZED FOR
THE APPEARANCE IN THE PROCESS OF GENERATION OF A COMPLEX PHONON SPECTRUM
FOR FREE AS WELL AS FOR BOUND EXCITONS. FOR CRYSTALS WITH A PREDOMINANT
CONTENT OF 1 OF THE COMPONENTS AT 77DEGREESK, GENERATION TAKES PLACE ON
FREE EXCITONS WITH PARTICIPATION OF 1 LONGITUDINAL OPTICAL PHONON (LO
SUB1 OR LO SUB2). FOR CRYSTALS WITH COMPARABLE CONCS., BOTH LO SUB1
AND LO SUB2 PARTICIPATE IN THE PROCESS OF GENERATION (2 PHONON
TRANSITIONS). WHEN TEMP. DECREASES TO 40DEGREESK, WHEN GENERATION TAKES
PLACE ON BOUND EXCITONS DEPENDING ON THE MAGNITUDE AND SPECTRAL
DISTRIBUTION OF LOSSES, FOR SOME CRYSTALS, TRANSITIONS CAN BE REALIZED
WITH RADIATION OF LONGITUDINAL OPTICAL PHONONS AND WITHOUT THE
RADIATION.

FACILITY: INST. FIZ., KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 621.374.33(088.8)

BOGUSLAVSKIY, R. Ye., REZNIK, B. D., SEVERINOVSKIY, N. S.
"A Bistable Commutator"

USSR Author's Certificate No 272370, filed 25 Mar 68, published 5 Nov 70
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G282 P)

Translation: This Author's Certificate introduces a bistable commutator which contains input and output isolation transformers, a transistor with positive feedback circuit which utilizes transformation of voltages from the collector circuit to the base circuit, and a capacitor. To simplify the circuit, increase the switching capacity of the transistor and reduce power consumption, the transistor is connected between the centertaps of the windings of the input and output isolating transformers, the end-points of these windings being connected through semiconductor diodes. The feedback circuit is made in the form of an auxiliary winding on the output isolating transformer. This winding is connected through a semiconductor diode to the base circuit of the transistor.

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USSR

"APPROVED FOR RELEASE: 09/17/2001" UDC: 621.396.67:624.97
POLINOV, Yu. S., VANYUSHIN, V. N., DUBROVIN, V. F., DMITRIYEVSKIY, N. M.,
REZNIK, A. P.

"Antenna-Mast Support"

USSR Author's Certificate No 266868, filed 10 Jun 68, published 3 Jul 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B102 P)

Translation: The proposed support consists of interconnected elements, a support framework mounted on a truck platform, an antenna with attached feeder channel, and mechanisms for folding and unfolding the support. To simplify folding and unfolding of the support, the feeder channel is made in the form of individual sections which are securely fastened to the elements of the mast and hinged together.

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USSR

UDC: None

VORONTSEV, V. A., GRUDNISTYY, V. V., KAMEKO, V. F., KOSHELENKO, V. V., REZNICHENKO, Yu. T., and YASKEVICH, E. P.

USSR

REZNIK, B. Ye., GANZBURG, G. M., and MAL'TSEVA, G. V., Dnepropetrovsk University, Dnepropetrovsk

UDC 546-386:535.343

"Study of the Phosphotungstomolybdate Heterocomplex"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 2, Feb 72, pp 481-485

Abstract: The IR spectra were determined of the phosphotungstomolybdate complexes prepared as described by the authors in Zh. Neorgan. Khimii, 12, 3191, 1967, by the reaction of phosphotungstate with molybdate (complex I) and of phosphate with tungstate and molybdate (complex II) followed by reduction with ascorbic acid. The spectra indicated that both complexes had the same structure of an unsaturated ternary complex $P:Mo:W = 1:1:7$ with mixed ligands. Both I and II could be assumed to have formed by replacement of tungstate with molybdate in the phosphotungstate complex. The results confirmed the conclusions already made in earlier work on the basis of UV spectra and spectra in the visible range.

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UDC: 669.243.51:661.937

MURASHOV, V. D., CHEREPAK, L. L., TOLSTOGUZOV, A. D., CHERNYSHEV, D. P., and
REZNIK, I. D.

"Experience on Adopting Oxygen in Shaft Melting of Nickel Sinter at the
Yuzhuralnikel' Combine"

Moscow, Tsvetnyye Metally, No 3, Mar 72, pp 1-3

Abstract: The use of 24.3% oxygen blast in shaft melting during the first six months of 1971 increased the absolute fusion of the sinter by 13.4% and the per-unit fusion by 22.2% against the 1968 level-prior to oxygen introduction. The per-unit coke consumption dropped by 17%, amounting to 21.9% of the sinter weight. Nickel content in the slags increased from 0.16 to 0.18%, which is ascribed to greater iron contents in the processed ores. The reduction in operating costs through the use of the two new oxygen blast lines (with 23.2% O₂) plus the profit from additional production outputs in the 1969-70 period show yearly savings of one million rubles. (2 tables, 7 bibliographic references).

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UDC 669.183.4:538.22

REZNIK, I. G., SUKHOTIN, B. N., and TUNKOV, V. P., "Serp i Molot" Metallurgical Plant

"Effect of the Technology of Smelting Low-Carbon Electric Steel on the Magnitude of the Coercive Force"

Moscow, Metallurg, No 12, Dec 70, pp 15-17

Abstract: An investigation was made of the effect of the technology of smelting type E low-carbon electric steel in 50- and 70-ton open-hearth furnaces on the magnitude of the coercive force. The effects of C and S content, oxidation rate, duration of bath boiling, and the inactive bath condition on the coercive force were determined by the correlation method. It was found that for producing steel with low coercivity, the C content of the metal at the moment bath smelting is completed must be 0.8-0.9% and that the period of active boiling should be 60-70 min with an average oxidation rate of 0.012-0.014% of C/min. The desulfurization process and the heating of the metal up to 1630°C must be completed before the beginning of the inactive bath (before a bath content of 0.12-0.10% of C) and the addition of ore during the final melting period.

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UDC: 621.317+519.21

REZNIK, K. A., Leningrad

"Using the Properties of a Distribution Model in Normalizing the Errors of Measurement Facilities"

Novosibirsk, Avtometriya, No 1, Jan/Feb 72, pp 19-23

Abstract: The paper describes a model of distribution of the errors of sets of measuring instruments. Since the forms of distribution of errors of such sets are unimodal and can be estimated from asymmetry and excess, the proposed theoretical model of error distribution is completely defined by the first four moments. It is shown on the basis of the properties of this model that normalization of the limiting permissible error is preferable to normalization of the standard deviation, since this means that quality control of measurement facilities can be done without additional information on the form of the error distribution. Entropy and standard deviation are two measures which characterize the scatter of instrument readings. Both these measures can be used for accuracy comparison of sets of instruments of different types. The paper gives a means of changing from one measure of comparison to the other. A procedure is presented for using the proper-

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REZNIK, K. A., Avtometriya, No 1, Jan/Feb 72, pp 19-23

ties of the error distribution model to determine the limiting permissible measurement error when the variance and excess of the components are known.

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1/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STABILIZATION OF THE VISCOSE FIBER PARAMETERS DURING FORMING -U-
AUTHOR--(04)-REZNIK, K.YA., GAYDUKOV, K.A., GRITSKOV, I.V., BUTYAGIN, P.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VOLOKNA 1970, (2), 49-52
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--RAYON, TEXTILE INDUSTRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0102 STEP NO--UR/0183/70/000/002/0049/0052
CIRC ACCESSION NO--AP0132395
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132395

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SPINNING RAYON FIBERS DIFFERENCES ARE OBSD. IN FIBER QUALITY FROM 1 SPINNERET HEAD TO ANOTHER. THESE DIFFERENCES ARE CAUSED BY DIFFERENCES IN THE RESIDENCE TIMES OF VISCOSE IN THE CONDUITS OF THE SPINNING MACHINE. A RECIRCULATION METHOD IS PROPOSED AND SUPPORTED BY MATH. DEDUCTIONS FOR EQUALIZING THE RESIDENCE TIMES.

FACILITY: KIEV FILIAL, VNIIV, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 612.822.1+612.82

MASLOVA, M. N., and REZNIK, L. V., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Functional and Biochemical Changes in the Rat Brain Immediately After Exposure to Hyperbaric Oxygen"

Moscow, Doklady Akademii Nauk SSSR, No 2, 1971, pp 494-496

Abstract: The orienting-search reaction and brain acetylcholinesterase activity were studied in rats immediately after exposure to oxygen under pressure (2.5 at m) for 30 to 40 minutes. The orienting-search reaction accelerated by 63% and acetylcholinesterase activity increased by 10%. On the assumption that these changes reflected not only adaptive but nonspecific reactions to stress, the animals were subjected to other comparable agents: adynamia, epinephrine, and amphetamine sulfate. All increased acetylcholinesterase activity in the brain (14, 18, and 17%, respectively, and amphetamine sulfate intensified motor activity appreciably. The effects of the stressors are related to excitation of the sympathoadrenal system.

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USSR

UDC 591.88.086.3:611.813.1

MASLOVA, M. N., OZIRSKAYA, Ye. V. and REZNIK, L. V., Laboratory of Applied Biochemistry, Institute of Evolutionary Physiology and Biochemistry, Academy of Sciences USSR, Leningrad

"Changes in Rat Cerebral Cortex During Hyperoxia (Comparison of Functional Biochemical and Morphological Data)"

Leningrad, Tsitologiya, Vol 15, No 1, 1973, pp 16-21

Abstract: Wistar rats were exposed to pure oxygen at 3.5-6 atm for 30-40 min until the initial, compensated stage of O₂ toxicity developed in one group and the convulsive stage in another group. Their functional state was evaluated by the time it took them to climb a net inclined at 45° (orientation reaction). After immediate decapitation, acetylcholinesterase activity in brain tissue was determined, and slices of sensory and motor cortex and of liver tissue were examined electron microscopically. In the initial stage of O₂ toxicity, the orientation reaction was accelerated by 63% and acetylcholinesterase activity increased by 10%. No morphological alterations were observed in brain cells, but liver cell mitochondria were moderately enlarged. All the changes fall into the category of a nonspecific reaction to stress, such as may be induced by moderate hypoxia or intramuscular injection of 30 mcg of 1/2

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MASLOVA, M. N., et al., Tsitologiya, Vol 15, No 1, 1973, pp 16-21

adrenaline. In the clonic convulsive stage, the orientation reaction was absent and acetylcholinesterase activity significantly reduced. Although the structure of nerve processes was normal, many mitochondria in cell bodies were enlarged and deformed, while the optical density of the matrix was reduced. All the changes were reversible and associated with increased activity. In the tonic convulsive stage, irreversible pathology developed: almost all mitochondria in the bodies and processes of neurons and in liver cells were swollen and round, with just a few or no cristas remaining. Good correlation with acetylcholinesterase was observed in all cases. However, even in the most severe stage of O_2 toxicity, the reaction was nonspecific and identical with that induced by intraperitoneal injection of 6 mcg of picrotoxin.

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USSR

UDC: 621.394.64

REZNIK, L. Ye., GLAZOV, B. I.

"A Device for Cyclic Search of Noise-Like Wide-Band Signals With Respect to Delay"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311415, Division H, filed 20 Oct 69, published 9 Aug 71, p 218

Translation: This Author's Certificate introduces a device for cyclic search of wide-band noise-like signals with respect to delay using target designation data. The device contains a target designation input circuit, receiving and transmitting generators of pseudorandom sequences with decoders, a trigger flip-flop, a control flip-flop, an operating mode flip-flop with AND circuit, a divider flip-flop, a cadence frequency oscillator for the receiving pseudorandom sequence generator, and a delay counter. As a distinguishing feature of the patent, search time is shortened by connecting the outputs of the above-mentioned cadence frequency oscillator for the receiving pseudorandom sequence generator to the first and second cadence inputs respectively of a commutation

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USSR

REZNIK, L. Ye., GLAZOV, B. I., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311415, Division H, filed 20 Oct 69, published 9 Aug 71, p 218

module whose commutating inputs are connected to the commutating outputs of a program module. The controlling input of the commutation module is connected to the output of the operating mode flip-flop mentioned above, and the signal input is connected to the output of a divider module. The inputs of the divider are connected to the outputs of the decoder for the receiving pseudorandom sequence generator, and at the same time the counting output of the commutation module is connected to the input of the program module, and the cadence output of the commutation module is connected to the input of the receiving pseudorandom sequence generator.

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USSR

UDC 621.317.761(088.8)

BOGDANOV, S. YE., SPICHENKOV, M. P., REZNIK, L. YE., BOTVINNIKOV, V. I.

"Device for Measuring the Carrier Frequencies of Shortwave AM Signals"

USSR Author's Certificate No 275223, Filed 16 Dec 68, Published 13 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A289P)

Translation: A device containing a professional superheterodyne receiver and an electronic counter is proposed for measuring the carrier frequencies of shortwave AM signals. It is distinguished by the fact that for automation and improvement of the operation of the measurement process the heterodyne outputs, the second intermediate-frequency amplifier of the receiver and one of the outputs of the standard oscillator are connected to the frequency conversion unit. The second output of the oscillator is connected to the automatic control unit by a counter comprised of a control circuit, divider, and valve, to the second input of which the signal is fed from the frequency conversion unit.

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USSR

UDC: 621.762.002.5(088.8)

IVANOV, D. G., REZNIK, M. G.

"Device for Processing of Powder Materials in a Gas Stream"

USSR Author's Certificate Number 347117, Filed 15/07/70, Published 4/09/72
(Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G447), by S. Krivonosova).

Translation: The device (D) suggested includes a cylindrical reaction chamber, tubes for tangential gas input, tubes for feed and drainage of the powder material and a barrier consisting of a truncated cone. In order to increase the time of processing of the powder in the large fractions and prevent ejection of particles, the reaction chamber is set at an angle to the horizontal and equipped with a cylindrical pipe, located along the axis of the device and having nozzle-shaped apertures set at a tangent to the direction which is the reverse of the direction of rotation of the gas stream. The D allows large-fraction powders to be processed, providing directed movement of the material in the gas stream. The degree of trapping of particles in the D reaches 99%. The D can be used for drying of powders. 1 figure.

1/1

USSR

UDC 620.178.38:620.197

ISHCHENKO, I. I., OMEL'CHENKO, V. I., SINAYSKIY, B. N., POGREBANYAK, A. D.,
BANAS, P. S., REZNIK, M. I., Kiev, Zaporozh'ye

"Study of Influence of Heat Resistant Coatings on Fatigue Strength of Refractory Alloy"

Problemy Prochnosti, No 10, 1971, pp 76-81.

Abstract: This work presents results of studies of the influence of certain types of heat resistant coatings on the fatigue strength of ZhS6K nickel alloy, widely used for aviation engine turbine blades. None of the coatings studied were found to increase fatigue resistance without preliminary heating of the specimens. Preliminary heating without application of the coatings caused a decrease in fatigue resistance. However, the combination of preliminary heating to 950°C for 1,000 hours with application of coatings (nitriding and application of aluminozirconium coatings) caused an increase in fatigue resistance.

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REZNIK, M. I.

JPRS 55972
12 May 1972

INVESTIGATION OF THE INFLUENCE OF OXIDATION-RESISTANT COATINGS ON THE FATIGUE STRENGTH OF HEAT-RESISTANT ALLOYS

UDC 620.176.38:620.197

[Article by I. I. Ishchenko, V. I. Omelchenko, B. N. Starytsky, A. D. Potomovsk, E. S. Bana, M. I. Reznik (Kiev, Zaporozh'ye); Kiev, Problemy Prochnosti, Russian, No. 10, 1971, signed to press 8 February 1971, pp 76-81]

The use of heat-resistant alloys with good strength properties increases the service life of gas turbine engines.

Service life can be increased even further by certain design and technological measures, one of which is the use of oxidation-resistant coatings for protecting parts from oxidation. This is particularly important in connection with high working temperatures in an engine. The most reliable results can be obtained from tests of an engine with coated parts. Such tests, however, are extremely expensive and take a long time. Therefore they must be preceded by investigations of specimens and structural components under laboratory conditions.

A great deal of work has been done on investigation of the structure of coatings, their oxidation resistance in the unretreated state, development of the technology of application of coatings. However, evaluation of the effectiveness of oxidation-resistant coatings according to data on their structure, composition and oxidation resistance is not sufficient. The reliable without additional determination of the strength properties of materials and structural components with coatings under conditions of mating operating conditions, i.e., under the influence of working stresses and temperatures, real media and other factors [1-3]. Moreover, the use of many heat-resistant materials depends largely on the choice of coating. Consequently the effectiveness of an oxidation-resistant coating is determined largely on the basis of results of investigation of the strength characteristics of heat-resistant materials with coatings. In such investigations great attention should be devoted to evaluation of the effectiveness of the coatings under conditions of variable stresses, when the state of the surface layer plays a particularly important role.

It has been demonstrated [4-7] that the influence of oxidation-resistant coatings on the fatigue strength of heat-resistant materials is

USSR

UDC 519.214

GORDIN, M. I., REZNIK, M. Kh.

"Repeated Logarithm Rule for Denominators of Continued Fractions"

Vestn. Leningr. Un-ta, [Herald of Leningrad University], No 13, 1970, pp. 28-35,
(Translated from Referativnyy Zhurnal Kibernetika, No. 5, 1971, Abstract No.
SV34 by V. Prelov).

Translation: Suppose $[a_0(t); a_1(t), a_2(t), \dots]$ is the expansion of a real number t into a continued fraction, while $\frac{p_k(t)}{q_k(t)} = [a_0(t); a_1(t), \dots, a_k(t)]$ is the convergent of order k of number t . It is known that the asymptotic behavior of the quantities in $q_n(t)$, as n approaches infinity is similar to the behavior of sums of independent random quantities. Thus, A. Ya. Khinchin and I. A. Ivargimov have proven correctness for the sequence in $q_n(t)$, $t \notin (0, 1)$ of the strong law of large numbers and the central limit theorem. In this work, the authors establish the correctness of the repeated logarithm rule for this sequence.

1/1

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1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF SOME ALKYLAMINO SUBSTITUTED 1,3-DIOXANES -U-
AUTHOR--(03)-BOGATSKIY, A.V., DROZDOVSKAYA, A.I., REZNIK, S.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 233-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC SYNTHESIS, AMINE, DIOXANE, IR SPECTROM, FORMALDEHYDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1062 STEP NO--UR/0063/70/015/002/0233/0234
CIRC ACCESSION NO--AP0128489
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128489

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 0.31 MOLE PARAFORMALDEHYDE AND 1 MOLE ISO, BUCHO WITH 0.71 MOLE OF THE REQUISITE AMINE 3-5 HR AT 100DEGREES GAVE 40PERCENT ME SUB2 NCH SUB2 CME SUB2 CHO, 8 SUB17 44DEGREES, D PRIME20 0.8568, N PRIME20 SUBD 1.4245; AND 47PERCENT ET SUB2 NCH SUB2 CME SUB2 CHO, 8 SUB7 51-2DEGREES, 0.8565, 1.4340. THESE CONDENSED WITH, RESP., 3,ETHYL,2,4,PENTANEDIOL AND 2,ETHYL,2,METHOXYMETHYL,1,3,PROPANEDIOL IN THE PRESENCE OF P,MEC SUB6 H SUB4 SO SUB3 H CATALYST IN REFLUXING C SUB6 H SUB6 WITH REMOVAL OF RESULTING H SUB2 O, GAVE: 6PERCENT, 2,(2,DIETHYLAMINO,1,1,DIETHYLETHYL) 4,6,DIETHYL,5,ETHYL,1,3,DIOXANE, B SUB6 62-50DEGREES, 0.9029, 1.4335; AND 6PERCENT 2,(2,DIETHYLAMINO,1,1,DIETHYLETHYL),5,METHOXYMETHYL,5, ETHYL,1,3,DIOXANE, B SUB3 73-40DEGREES, 0.9611, 1.4375. IR SPECTRA WERE DESCRIBED. FACILITY: ODESS. GOS. UNIV. IM. MECHNIKOVA, ODESSA, USSR.

UNCLASSIFIED

USSR

REZNIK, S. R., and ZATULA, D. G., Institute of Microbiology and Virology,
Academy of Sciences Ukrainian SSR

"Toxic Characteristics of Some Bacteria of the subtilis-mesentericus Group"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 748-750

Abstract: Some strains of bacteria of the group subtilis-mesentericus form toxic metabolites that may produce specific lesions of the central nervous system in animals. These strains were present in the intestine of 5 percent of rabbits and other laboratory animals. A study of nine strains of subtilis-mesentericus bacteria isolated from the environment and from intestinal flora showed that these strains were toxicogenic to a greater or lesser degree, depending on the strain, under diverse conditions of cultivation. The toxic filtrates from the bacterial cultures produced a form of encephalomyelitis in animals that resembled allergic encephalomyelitis. It is possible that in connection with the preparation of antirabies vaccine, bacterial toxins of this type are transferred into the brain of the animals that are used (specifically, the brains of rabbits) and then into the vaccine. A study of 800 sera of healthy persons, persons who had received injections of nerve tissue antirabies vaccine, and persons who developed encephalomyelitis after treatment

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USSR

REZNIK, S. R., and ZATULA, D. G., Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 748-750

with vaccine of this type, showed that the sera of healthy, untreated persons did not contain precipitins that reacted with the toxic bacterial metabolites in question, while the sera of persons who had been treated with antirabies vaccine contained such precipitins. Reznik and A. I. Kutoviy established that the culture liquids of the bacteria studied contained at least two toxic substances, a protein and a substance of the acetylcholine type that was possibly bound to a protein. Small amounts of the lyophilized toxic filtrate stimulated the formation of hemagglutinins and increased the amount of properdin, while large doses of the toxin suppressed immunogenesis, as shown by comparison of the immunity indexes with those of controls.

2/2

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USSR

UDC 576.8.095+591.1

REZNIK, S. R., and KUTOVY, Ya. I., Institute of Microbiology and Virology,
Academy of Sciences Ukrainian SSR

"The Effect of the Products of Metabolism of *Bacillus subtilis*, Strain 110, on
Cholinesterase Activity of Animal Brains."

Kiev, Mikrobiologicheskii Zhurnal, Vol 32, No 3, May/June 70, pp 386-388

Abstract: The brains of 87 mice suffering from encephalomyelitis artificially induced by *Bacillus subtilis*, strain 110, were studied, and an increase in cholinesterase activity from 5.89 (normal) to 7.57 was noted. This increase of cholinesterase activity is a natural response of the organism to the increase of acetylcholine - resulting from infection products - which causes hemodynamic disturbances in the central nervous system.

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1/2 024
UNCLASSIFIED
PROCESSING DATE--09OCT70
TITLE--THE ROLE OF TOXINS OF CERTAIN SAPROPHYTIC MICROBES IN THE ETIOLOGY
OF EXPERIMENTAL NEUROPARALYTIC DISEASES -U-
AUTHOR--(03)-REZNIK, S.R., SELIMOV, M.A., SLABOSPITSKAYA, A.T.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4,
PP 81-86
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BACTERIAL TOXIN, SOIL BACTERIOLOGY, BACTERIAL SPORE, VIRAL
VACCINE, RABIES, EXOTOXIN, GASTROINTESTINAL DISEASE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/1535
STEP NO--UR/0016/70/000/004/0081/0086
CIRC ACCESSION NO--AP0109595
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109595

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EXAMINATION OF 84 STRAINS OF BACTERIA, SAPROPHYTIC IN SOIL AERIAL MEDIUM AND ENCOUNTERED IN THE INTESTINE OF MAMMALS DEMONSTRATED THAT AMONG THE SPORE BEARING BACTERIA OF BAC. SUBTILIS MESENTERICUS GROUPS THERE WERE STRAINS WHICH PRODUCED SUBSTANCES OF THE EXOTOXIN TYPE; THESE SUBSTANCES CAUSED A PATHOLOGICAL PROCESS OF ENCEPHALOMYELITIS TYPE IN ADMINISTRATION TO LABORATORY ANIMALS. THE MENTIONED TOXINS WERE RESISTANT TO THE ACTION OF LOW CONCENTRATIONS OF PHENOL, PRODUCED A CUMULATIVE EFFECT IN TESTING ON ANIMALS, AND WERE CAPABLE OF PENETRATING FROM THE GASTROINTESTINAL TRACT INTO THE BLOOD AND BRAIN OF ANIMALS (RABBIT) DURING THE AGONAL STATE. SINCE DURING MAKING OF RABIES VACCINE THERE MAY OCCUR CONDITIONS AIDING THE ACCIDENTAL INTRODUCTION OF SUCH TOXINS INTO THE PREPARATION, AND ADDITIONAL CONTROL FOR TOXICITY OF THE VACCINE IS SUGGESTED.

UNCLASSIFIED

USSR

UDC 632.951:633.63

REZNIK, V. N., Candidate of Biological Sciences, All-Union Scientific Research Institute of Sugar Beets

"Application of Granulated Rogor Against Aphids on Plantings and Seed Plants of Sugar Beets"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 2, 1973, pp 31-33

Abstract: Tests were conducted to find an insecticide which would control aphids without destroying useful insects, on beet plantings at Belotserkovskaya Station, Kiev Oblast, Uladovo-Lyulinetskaya Station, Vinnitskaya Oblast, and L'govskaya Station, Kurskaya Oblast. Of a number of tested pesticides granulated rogor proved the most promising. In 1969-1970 tests were made using a 5% preparation with granules measuring 15-20 mm, prepared by applying a 40% rogor solution onto superphosphate granules at a rate of 5 kg per 100 kg of fertilizer. In 1971 factory types were used: phosphoman with 2% rogor and 1% of the gamma isomer hexachlorocyclohexane; and phosphamide with 1.6% rogor. In all variants 2 kg/ha of rogor was applied on beet plantings, and 0.1-0.2 g. in each seed beet hole. The tests were repeated 4 times on plots from 10-50 m². Results indicate that rogor protected the beets through May and June, and the factory preparations were most effective.

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USSR

REZNIK, V. N., Khimiya v Sel'skom Khozyaystve, Vol 11, No 2, 1973, pp 31-33

Plant toxicity due to the pesticide gradually declined, but the rogor use led to a harvest increase of 10c/ha and a seed harvest increase of 2.6c/ha., on the average.

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USSR

UDC 632.951:633.63

REZNIK, V. N., All-Russian Scientific Research Institute of Sugar
Beets

"Test Results of New Chemicals for Leaf Beet Aphid Control"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 1, Jan 70, pp 25-27

Abstract: In 1964-1967 a number of organophosphorus insecticides were tested for control of the leaf beet aphid Aphis fabae Scop at the experimental farm of the All-Russian Scientific Research Institute of Sugar Beets. The organophosphorus insecticides tested were Baytex, Phosalone, Saphos, Solvirex, Fitios and Antio. Also tested were insecticides based on carbamic acid derivatives, viz. Zectran, Unden and Methacyl. It was found that Unden, Saphos, Phosalone, Antio and Solvirex are effective against the beet aphid on young plantings and seed plants. Baytex and Fitios are somewhat less toxic, and Methacyl and Zectran are ineffective.

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1/2 014
TITLE--RESULTS OF TESTING NEW PREPARATIONS AGAINST APHIS FABAE -U-
AUTHOR--REZNIK, V.N.
COUNTRY OF INFO--USSR
SOURCE--KHIM. SEL. KHOZ. 1970, 8(1), 25-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INSECTICIDE, AGRICULTURE CROP/(U)SAPHOS INSECTICIDE, (U)ANTHIO
INSECTICIDE, (U)BAYTEX INSECTICIDE, (U)FITIOS INSECTICIDE, (U)ZEKTRAN
INSECTICIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0384
CIRC ACCESSION NO--AP0113302
STEP NO--UR/0394/70/008/001/0025/0027
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0113302

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. UNDEN, (50PERCENT WETTABLE POWDER (W.P.), 0.3 KG ACTIVE INGREDIENT (A.I.)-HA), SAPHOS (70PERCENT W.P., 0.7 KG A.I.-HA) ANTHIO (25PERCENT EMULSIFIABLE CONC. (E.C.), 0.5 KG A.I.-HA), AND SOLVIREX (5PERCENT GRANULATED PREPN., 1.5 KG A.I.-HA) EFFECTIVELY CONTROLLED INFESTATIONS OF THE TITLE INSECT ON FIELDS OF SUGAR BEET SEEDLINGS. BAYTEX (40PERCENT W.P., 0.3 KG A.I.-HA) AND FITIOS (20PERCENT E.C., 0.3 KG A.I.-HA) WERE SOMEWHAT EFFECTIVE AND ZEKTRAN (25PERCENT W.P.) WAS INEFFECTIVE. FACILITY: VSES. NAUCH.-ISSLED. INST. SAKHAR. SVEKLY, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 542.91:547.1'118

REZNIK, V. S., SHVETSOV, YU. S., and PASHKUROV, N. G., Institute of Organic and Physical Chemistry imeni A. E. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. Communication 5. The Synthesis of β -(Oxopyrimidinyl-N)-Ethylphosphonic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, 1973, pp 402-406

Abstract: Several methods were investigated for the synthesis of β -(oxopyrimidinyl-N)-ethylphosphonic acids. The reaction of 3-(β -chloroethyl)-6-methyluracil with triethyl phosphite (I) at 150-155°, resulted in the formation of 2,3,4,5-tetrahydro-5-oxo-7-methyloxazolo[3,2-a]-pyrimidine and diethylphosphoric acid. 1,3-bis-[β -(diethylphosphono)-ethyl]-6-methyluracil was synthesized by the reaction of I with 1,3-bis-(β -chloroethyl)-6-methyluracil at 160-165°. β -(3,6-dimethyl-2,4-dioxo-1,2,3,4-tetrahydropyrimidinyl-N-1)-ethyl p-toluenesulfonate (II) was prepared by the addition of 5.5 g of p-toluenesulfonyl chloride to 5 g of 3,6-dimethyl-1-(β -hydroxyethyl)uracil in 12 g of triethylamine, with 1/3

USSR

REZNIK, V. S., et al., Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya, No 2, 1973, pp 402-406

the temperature not exceeding 40°. 2.2 g of II were obtained, with a m.p. of 153.5-155.5° (from benzene). The dibutyl ester of β -(3,6-dimethyl-2,4-dioxo-1,2,3,4-tetrahydropyrimidinyl-1-N)-ethylphosphonic acid (III) was obtained in a 36% yield by the addition of II to Na dissolved in dibutyl phosphite, and boiling. III is a bright-yellow oily solution highly soluble in benzene and CCl_4 (n_D^{20} 1.4895; IR spectrum (ν , cm^{-1}): 1,675, 1703 (C=O), 1270 (P=O), 1000, 1025 (P-O-C)). The formation of III indicates that the presence of a tautomeric OH group in 3-(β -hydroxyethyl)- or 3-(β -chloroethyl)-6-methyluracil on the 2 position of the pyrimidine ring makes possible the closure of the 5-membered oxazole ring. For the formation of 4-oxopyrimidinyl-N-ethylphosphonic acids, studies were undertaken on the reaction of the tosylate of 3-(β -hydroxyethyl)-6-methyluracil (IV) and 2-amino-3-(β -hydroxyethyl)-4-oxo-6-methyl,3,4-dihydroxyrimidine (V) and with triphenyl phosphite (VI). The reaction of IV with VI proceeds at 230-240° with a 51% yield of β -(2-oxy-4-oxo-6-methyl-3,4-dihydropyrimidinyl-3)-ethylphosphonic acid (amorphous powder, insoluble in alcohol, highly soluble in water; IR spectrum (ν , cm^{-1}): 930-1250, maximum 2/3

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USSR

REZNIK, V. S., et al., *Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya*, No 2, 1973, pp 402-406

at 1215, 2250-3600 (diffuse, P-OH and N-H), 1660 and 1715 (C=O)). The reaction of V and VI commences at 160° and attains 230° and results in a yield of 42% of β -(2-amino-4-oxo-6-methyl-3,4-dihydro-pyrimidinyl-3)ethylphosphonic acid (amorphous substance, soluble in water but not alcohols; IR spectrum (ν , cm^{-1}): 1080, 1175, 1230, and diffuse absorption at 2300-3500), and a 36% yield of 2,3,4,5-tetrahydro-5-oxo-7-methylimidazolo [3,2a]pyrimidine (VII). The formation of VII was attributed to an attack of the amino group of the pyrimidine ring on the β -carbon atom, whose electrophilic properties were enhanced by the inductive effect of the oxyphosphoryl group. VII is a crystalline substance, highly soluble in water and moderately in hot n-butanol, and insoluble in acetone. IR studies of VII showed that $\nu_{\text{N-H}}$ appeared at 3060-3125 cm^{-1} , and $\nu_{\text{C=O}}$ at 1670 cm^{-1} . The reaction of VI with 1,3-bis-(β -oxyethyl)-6-methyluracil at 160-165°, following hydrolysis, gave a 33% yield of 1,3-bis-(β -phosphonoethyl)-6-methyluracil and a 21% yield of 1,3-bis-(β -phenoxyethyl)-6-methyluracil.

3/3

USSR

UDC 542.91:547.85:547.1'118

REZNIK, V. S., BAKULIN, V. S., and IVANOV, B. YE., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. Communication 6. Reaction of Certain Hydroxypyrimidines With Dibutyl Ester of 3-Chloropropylphosphonate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 73, pp 875-878

Abstract: This study was aimed at the reactions of sodium salt of uracyl (I), 6-methyluracyl (II) and 2-amino-4-hydroxy-6-methylpyrimidine (III) with dibutyl ester of 3-chloropropylphosphonic acid (IV) in DMF or butanol, using equimolar quantities of the reagents. The reaction of (I) and (IV) gives a mixture of 1,3-bis[3'-dibutylphosphono)propyl]uracyl and dibutyl ester of 3-(2',4'-dioxo-1',2',3',4'-tetrahydropyrimidinyl-1')propylphosphonic acid. (II) reacted with (IV) yields also a mixture of two products -- analogues of above compounds with a 6-methyl substituent. Reaction of (III) and (IV) in refluxing butanol yields a mixture of dibutyl esters of 3-(2'-amino-6'-methylpyrimidinyl-4'-hydroxy)propylphosphonic acid and 3-(2'-amino-4'-oxo-6'-methyl-3',4'-dihydropyrimidinyl-3')-propylphosphonic acid.

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USSR

UDC 542.91:547.85:547.1'118

REZNIK, V. S., BAKULIN, V. S., IVANOV, B. YE., GOL'DFARB, E. I., and
SAMARTSEVA, S. A., Institute of Organic and Physical Chemistry Imeni A. Ye.
Arbuzov, Acad. Sc. USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. Communication
7. Synthesis and Properties of Uracylphosphates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 73,
pp 879-883

Abstract: The sodium salt of uracyl reacted with diphenylchlorophosphate (I) in absolute benzene to yield 2,4-bis(diphenylphosphonoxy)-pyrimidine. Reaction of the sodium salt of 1,6-dimethyluracyl with (I) in m-xylene gives 1,6-dimethyl-4-(diphenylphosphonoxy)uracyl, and the reaction of the sodium salt of 3,6-dimethyluracyl with (I) in m-xylene gives a mixture of inseparable isomers. All of these uracylphosphates react with alcohols at about 20° giving quantitative yields of uracyls and corresponding alkylidiphenylphosphates.

1/1

USSR

UDC 547.26'118 + 547.854.1

REZNIK, V. S., and PASHKUROV, N. G., Kazan' Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of Sciences

"Interaction of the Chloralkyl Esters of the Phosphorus Acids With Salts of Oxypyrimidines"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,441-2,446

Abstract: As the authors demonstrated in 1967, the reactions between N(β -hydroxyalkyl)pyrimidines, which have basic properties, and the phosphorus acid chlorides, are unsatisfactory in that many of them will not yield the corresponding phosphorus acid esters. This prompted a search for a new means of synthesizing these esters, some of which had never been obtained before. Sodium 2-hydroxy-4,6-dimethylpyrimidine reacted with tris-(β -chloroethyl) phosphate and 1,2-dichloroethane, thus producing 1,2-bis(2'-oxo-4',6'-dimethyldihydropyrimidinyl-N)ethane and 1,2-bis(2'-oxo-4',6'-dimethyldihydropyrimidinyl-N)ethane. Sodium 2-amino-4-hydroxy-6-methylpyrimidine reacted with hexyl (α -chloropropylene glycol) phosphite, producing 2-amino-3-(β , γ -dihydroxypropyl)-6-methyl-3,4-dihydropyrimidinone-4. Sodium 6-methyluracil reacted with ω -chlorohexyl ester of methylphosphonic acid, producing ω -(2,4-dioxo-6-methyl-1,2,3,4-tetrahydropyrimidinyl-3)hexyl ester of bis-chloromethylphosphonic acid. Physico-chemical constants and procedural details are given.

1/1

USSR

UDC 542.91:661.718.1+547.854

REZNIK, V. S., and SHVETSOV, YU. S., Institute of Organic and Physical Chemistry imeni A. YE. Arbutov, Academy of Sciences USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. 3 Communication. Reaction of Some Hydroxypyrimidines with Dibutyl-4-chlorobutylphosphonate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2231-2237

Abstract: Reaction of 6-methyluracil (I) and 2-amino-4-hydroxy-6-methylpyrimidine (II) with dibutyl-4-chlorobutylphosphonate (III) were studied. To a solution of 2 g Na in 200 ml butanol, 10.9 g of dry (I) was added and refluxed for 2 hrs. The solvent was evaporated and 200 ml dimethylformamide and 24.6 g (III) were added and refluxed for 20 hrs. Then the mixture was filtered, the solvent evaporated and the residue chromatographed on a silica gel column. Elution with chloroform gave pure 1,3-bis-(4'-(dibutylphosphono)butyl)-6-methyl-uracil (IV) -- an oil, d_{40}^{20} 1.0653, n_D^{20} 1.4880. A solution of 10 g (IV) in $CHCl_3$ was heated to 55-60° and bromine was added to it dropwise until the solution became permanently colored. Then it was cooled, 1/2

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REZNIK, V. S., and SHVETSOV, YU. S., *Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya*, No 10, Oct 71, pp 2231-2237

treated with active charcoal and evaporated. The residue was redissolved in benzene, washed with water, treated with active charcoal, Al_2O_3 and silica gel and evaporated yielding 1,3-bis-[4'-(dibutylphosphono)butyl]-5-bromo-6-methyluracil (V), d_4^{20} 1.2447, n_D^{20} 1.4865. In a similar way reaction of (II) and (III) gave 2-amino-4-[4'-(dibutylphosphono)butyl]-hydroxy-6-methylpyrimidien (VI), d_4^{20} 1.0848, n_D^{20} 1.4884 and dibutyl-4'-(2-amino-4-keto-6-methyl-3,4-dihydropyrimidinyl-3)-butylphosphonate (VII), d_4^{20} 1.1051, n_D^{20} 1.5100. Reacting (VI) with CH_3I gave 2-amino-4-keto-1,3,6-trimethyl-3,4-dihydropyrimidinium iodide, m.p. 244-245°. (VI) and (VII) were brominated in $CHCl_3$ to give the 5-bromo derivatives: an oil and a crystalline product m.p. 105-108° respectively.

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USSR

UDC 542.91:661.718.1

REZNIK, V. S., and SHVETSOV, YU. S., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of Pyrimidinylalkylphosphonic Acids. 2. Some Properties of 4-Oxopyrimidinyl-3-methylphosphonic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 9, Sep 71, pp 2006-2009

Abstract: The authors synthesized the dimethyl ester of (2-hydroxy-4-oxo-5-bromo-6-methyl-3,4-dihydropyrimidinyl-3)-methylphosphonic acid and the di-(phenyl-amide) of (2-hydroxy-4-oxo-6-methyl-3,4-dihydropyrimidinyl-3)-methylphosphonic acid by the reaction respectively of methanol and aniline with the acid chloride and studied the methylation of (2-amino-4-oxo-6-methyl-3,4-dihydropyrimidinyl-3)-methylphosphonic acid. Some properties and the IR spectra of the resultant compounds were studied.

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USSR

UDC 542.91+547.85

REZNIK, V. S., and SHVETSOV, YU. S., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences, USSR

"Synthesis of Some 5-Bromo-N-(hydroxyalkyl)-pyrimidones-4"

Moscow, Izvestiya Akademii Nauk, Seriya Khimicheskaya, No 7, Jul 70, pp 1646-1647

Abstract: It was established that in synthesizing 5-bromo-N-(hydroxy-alkyl)-pyrimidone-4 type of compounds, which are insoluble in nonpolar solvents, it is best to carry out the reaction in anhydrous butyl alcohol at 60-120°C, the bromination taking place vigorously, so that the reactions are completed within 5-10 min. After cooling, crystalline products precipitate in sufficiently pure state so that for most purposes they need no further purification. Melting points of several representative compounds are reported.

1/1

USSR

UDC: 536.46:533.6

REZNIK, V. Ye., GORELOVA, N. B.

"Combustion in the Boundary Layers of Wakes of Finite Thickness"

Tr. Kuybyshev. aviats. in-t (Works. Kuybyshev Aviation Institute), 1970, vyp. 45, pp 93-107 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B1091)

Translation: The authors calculate the characteristics of combustion of a homogeneous fuel-air mixture in the boundary layer formed when a jet of heated inert gas is mixed with a cold reactive mixture of non-stoichiometric composition. It is assumed that the velocity, temperature and concentration vary monotonically in the volume moving along the averaged stream line, and that their distribution on the section preceding the ignition point remains the same as in the absence of chemical reactions. It is assumed that the most probable combustion zone will be that where heat release is a maximum. A formula for calculating the coordinate of the critical point is derived by using relations for the quantity of heat released as a result of the reaction and heat lost during exchange with the ambient medium, as well as the balance of enthalpies. Using the experimental data, a series of curves is plotted for the critical dimensions of the hot jet which ensures ignition of a fuel-air mixture of given composition. Bibliography of 3 titles. Yu.F. Dityakin.

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USSR

UDC 621.45.05.0

REZNIK, V. YE., CORELOVA, N. B.

"On the Problem of Selecting the Optimal Degree of Blocking in Booster Chambers"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970,
No. 45, pp 86-92 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 4, Apr 72,
Abstract No 4.34.28)

Translation: The optimal degree of blocking from the aspect of combustion stability is obtained as a function of the reduced flow velocity λ_0 and the resulting relationship is analyzed. The expression for ϵ_{opt} as a function of λ and Re in conjunction with known expressions relating blocking and loss coefficients make it possible to approach more fully and fundamentally to the meaning of ϵ in direct-flow booster chambers. 3 ill., 2 ref. Resume.

1/1

USSR

UDC 622.612.1:532.526

REZNIK, V. YE., GORELOVA, N. B.

"Ignition in the Boundary Layers of Wakes of Finite Thickness"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970,
No. 45, pp 93-107 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 4, Apr 72,
Abstract No 4.34.24)

Translation: The problem of the ignition of a fresh heat-air mixture in boundary layers formed in the merging of flows of heated inert gas and a cold reaction-capable mixture of nonstoichiometric composition is solved. It is assumed that the combustion reaction has a second order. Individual results of the theory of turbulent jets and the thermal combustion regime were used in the solution and also the experimental data of M. T. Bortnikov on ignition were included. The critical dimensions of the initial width of the hot stream ensuring ignition of the fresh mixture for various parameters P , T , W , and α at the input were determined. The relationships obtained in the paper can be used in the design of burners of the mixing type. 14 ill., 4 ref. Resume.

1/1

USSR

UDC: 536.3

PETROV, V. A., REZNIK, V. Yu., Institute of High Temperatures, Academy
of Sciences of the USSR

"Integral Normal Emissivity of Grade 'KI' Quartz Glass at High Tempera-
tures"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 4, Jul/Aug 72, pp
778-782

Abstract: The authors discuss errors in the measurement of the integral
emissivity of partially transparent materials and give the results of
measurement of the normal integral emissivity of grade KI quartz glass
for five thicknesses from 2 to 10 mm at temperatures of 600-1400°K. The
error of the experimental data is 4.35%. A comparison with data in the
literature on Corning glass No 7940 shows good agreement.

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USSR

UDC: 576.895.771:616.988.25-036.2(571.63)

FEDDER, M. L., REZNIK, YE. P., DANILEVSKIY, M. L., MANTUKHOV, A. G., and TROTSKAYA, D. F., Institute of Medicinal Parasitology and Tropical Medicine
Izraeli Ye. I. Martsinovskiy, USSR Ministry of Public Health, Moscow; Institute of Epidemiology and Microbiology, Vladivostok

"Data of the Epidemiological Evaluation of Natural Populations of Aedes
toga Theobald in the Soviet Primorye"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3,
May/Jun 71, pp 301-307

Abstract: A. toga mosquitos are carriers of Japanese encephalitis in a number of Southeast-Asian countries and also in the Primorskiy region of the Far Eastern USSR. Data on the duration of the gonotrophic cycle of A. toga in the Khasan region were collected in July-August 1969 at a number of points of the region; the cycle was found to last seven to eight days. Females, which grew for two or more gonotrophic cycles, were most dangerous, respect to Japanese encephalitis and wuchereriosis, that is 14-16 day-old females for encephalitis and 21-24 day-old females for wuchereriosis. The age composition of natural populations was determined from autopsy of 2,123 females. A total of 11.5% of attacking encephalitis-carrying mosquitos were females, while 1/2

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FEDDER, M. L., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40,
No 3, May/Jun. 71, pp 301-307

only 2.9% of the wuchereriosis-carrying attacking mosquitos were female. At peak activity, there were 9.8 females per hour attacking one person among the encephalitis-carrying mosquitoes, while only 3.3 females per hour attacked one person among the wuchereriosis-carrying mosquitoes.

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-48-

1/2 016
UNCLASSIFIED
TITLE—TEMPERATURE CALCULATION IN MOTION OF A FLAT ANNULAR HEAT SOURCE IN
APPLICATION TO DIAMOND DRILLING —U—
AUTHOR—(03)—REZNIKOV, A.R., BUYTSOVA, L.V., TEMNIKOV, A.V.
PROCESSING DATE—20NOV70
COUNTRY OF INFO—USSR
SOURCE—INZHENERNO FIZICHESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 154-161
DATE PUBLISHED—70
SUBJECT AREAS—MATERIALS, PHYSICS
TOPIC TAGS—GLASS PROCESSING, DIAMOND, BORING MACHINE, HEAT SOURCE
CENTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/1936
STEP NO—UR/0170/70/018/001/0154/0161
CIRC ACCESSION NO—AP0125525
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70
 CIRC ACCESSION NO--AP0125525
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIG. 1. SCHEME OF TEMPERATURE
 FIELD CALCULATION OF PLANE ANNULAR MOVABLE HEAT SOURCE. FIG. 2. GRAPH
 FOR DETERMINATION OF FUNCTION F_{SUB1} , (A) (1 DIAMETER OF SOURCE 25 MM;
 2, 20; 3, 17; 4, 12) AND F_{SUB2} (DELTA). S, MM-SEC; F_{SUB1} CM PRIME2
 TIMES SEC DEGREEESC-CAL; ALPHA, CAL-CM PRIME2 TIMES SEC DEGREEESC; F_{SUB2} ,
 CM PRIME2 TIMES SEC. DEGREEESC-CAL. FIG. 3. SCHEME OF TEMPERATURE
 CALCULATION AT END FACE OF THIN COOLING ROD. FIG. 4. SCHEME OF GLASS
 DRILLING BY DIAMOND: 1, BODY OF DIAMOND DRILL; 2, DIAMOND LAYER; 3,
 TESTED GLASS; M SUBC, WORKING FACE OF DRILL. SUMMARY. IN THE PAPER
 THE METHOD OF HEAT SOURCES IS APPLIED TO SOLUTION OF THE PROBLEM ON
 TEMPERATURE APPEARING IN A SOLID MASSIF WITH AN ANNULAR HEAT SOURCE
 MOVING IN IT. THE SOLUTION RESULTS ARE USED FOR TEMPERATURE CALCULATION
 IN GLASS BORING BY A DIAMOND ANNULAR DRILL. CALCULATION SCHEMES ARE
 SHOWN IN FIGS 1, 3, AND 4.

UNCLASSIFIED

Acc. Nr.: AP0046867

Ref. Code: URC122

USSR

UDC 621.787.4:621.921.34

REZNIKOV, A. N., Professor, Director Technical Sciences, BARATS,
IA. Iv. Engineer

"Use of Diamond Burnishing for Finishing and Strengthening"

Moscow, Vestnik Mashinostroyeniya, No 1, 1970, pp 15-17

Abstract: The use of diamond burnishing of surfaces for finishing and strengthening purposes is described. Data are presented on theoretical investigation of the process. The shape of a working tool surface (diamond), at equal pressure in the zone of burnishing, weakly affects the surface roughness and its micro-hardness, and at the same time substantially affects the magnitude and distribution of residual stresses in the surface layer of the machined piece. Analytical expression, for the maximum temperature generated at the contact surface is derived by solving a system of two equations.

Reel/Frame
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$$\theta_{\max} = \frac{4 P_z a_0 (\tau_m + L)}{J l \Delta \lambda_0 \left[\frac{4 \sqrt{2 a_0 \lambda_a}}{\Delta v \lambda_0} (\tau_0 + L) + 1 \right]}, \quad (1)$$

where P_z is the peripheral force in kg; a_0 is the temperature conductivity coefficient of the material in cm^2/sec ; λ_0 and λ_a are heat conductivity coefficients of the material and tool, J is the reciprocal of mechanical equivalent of heat in $\text{cal}/(\text{cm} \times \text{sec} \times ^\circ\text{C})$; l is the radius of contact surface in cm; Δ is the depth of penetration of plastic deformations at the contact surface center in cm; and v is the working speed in cm/sec . The first equation is established under the assumption that the temperature at any point on contact surface, which is determined from the side of working piece is equal to the temperature determined from the side of the tool. The second equation is established in the form of a thermal balance between the total heat quantity absorbed by the tool and the piece. Temperature distribution at various points on contact surface is presented in a graph for different values of non dimensional parameter $p-2a_0/v l$. It shows that with decreasing p (increase in working speed v), the contact

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AP0046867

surface temperature increases, while the most heated sections located behind the center, are moving toward the contact surface extremity. A comparison of analytical and experimental data on the dependence of contact surface maximum temperature upon the working speed and radius of the tool, which is presented in a graph, shows a good agreement. The application of this process for finishing and strengthening of roll bearing elements increased 10 times the labor productivity in comparison with other methods. The economy of this process is stressed. Original article has 3 figures and 3 formulas.

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19790187

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BIOLOGY

Agriculture

USSR

REZNIKOV, A. R. Candidate of Agricultural Sciences and SARSAY, V. D., VNIIEEMK
(All Union Order of Labor Red Banner Scientific Research Institute of Essential
Oil Crops)

"The MZS-1.8 Machine for Infection of Rye with Ergot"

Moscow, Traktory i sel'khoz mashiny, No 5, 1970, p 42

Translation: Ergot is the raw material for a number of pure alkaloids and their derivatives, which are peculiar to ergot and are used in the chemical and pharmaceutical industry for production of valuable compounds.

Ergot is cultivated on rye in specialized sovkhoses of the "Promsprog" All-Union Society of the Ministry of the Medical Industry. Until recently, infection of rye with ergot was done manually with a board supplied with needles and a felt pillow moistened with the infective fluid. The worker walks along the rows in the rye field, piercing rye ears and infecting them by clapping the board with needles against the pillow. According to the work standard, one worker can treat up to 0.5 hectares per day by this method. The most effective period for infection lasts only 3-4 days (the beginning of the heading stage of the grain). Thus farms having 100-150 hectares of rye for cultivation of ergot need 300-400 men for this work.

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USSR

REZNIKOV, A. R. and SABSAY, V. D., Traktory i Sel'khoz mashiny, No 5, 1970, p 42

Since such a great expenditure of labor is necessary to infect rye with ergot, (20 man-days per hectare), only around 1,000 hectares in the USSR are infected. In order to satisfy the requirements of the pharmaceutical industry, approximately 4,000 hectares of infected rye would be necessary. In 1965-1966 the State Special Design Bureau of the All-Union Scientific Research Institute of Essential Oil Crops at Simferopol, in collaboration with the Laboratory of Mechanization of the All Union Scientific Research Institute of Medicinal Plants in Moscow, invented an experimental model of a machine for infection of rye with ergot, the MZS-1.8.

The machine is mounted on a self-propelled chassis T16M-MCh with a road clearance of 1,000 mm and is able to infect rye standing 400-1,200 mm high. It has five pairs of vertical rollers 400 mm high. In each pair of rollers, one is provided with needles and the other covered with sponge rubber. A tractor hydraulic system regulates the height (400 mm).

A special injection nozzle using compressed air to spray the infective fluid on the rye and the rollers is located over the inlet slot of each pair of rollers. Compressed air is supplied from a compressor driven by an independent tractor power takeoff, to the injection nozzles and the excess-pressure tank.

The working rollers are driven by a tractor synchronous power takeoff. The

USSR

REZNIKOV, A. R. and SABSAY, V. D., Traktory i sel'khoz mashiny, No 5, 1970, p. 42.

rate of movement of the ends of the needles is roughly equivalent to the rate of forward movement of the vehicle. This assures very slight bruising of plants.

Each set of rollers processes two rows of rye, sown with a sowing machine with 150 mm between rows. In order to prevent mashing of plants by tractor wheels, it is recommended that rye be sown in strips 10 rows each, with 450 mm between bands, i.e., the usual 24-row field in which the two middle and both end seeders of the sowing apparatus are covered over.

As the machine moves, each two rows of rye are directed by the separators into the opening between the operating rollers. Bars are held by the needles of one of the rollers, punctured and pressed to the rubber roller. The infective fluid is introduced into the grain on moistened needles on the way in and on the way out with additional fluid which is in the pores of the rubberized roller.

The MZS-1.8 machine passed government tests at the Western Machine-Testing Station and was recommended for production of experimental batches. Tests were conducted in the Belorussian SSR at the specialized sovkhos "Bol'shoye Mozheykovo". During the tests from 16 to 25 May, 1967, 60 hectares of rye were infected with ergot. Tests showed that the MZS-1.8 makes possible high-grade infection of rye with ergot and completely fulfills the requirements of agricultural technology. The ergot yield is increased 1.4 times, labor expenditures are decreased thirteen-fold, and direct expenses are reduced 16.6% as compared with manual labor.

USSR

REZNIKOV, A. R. and SABSAY, V. D., Traktory i sel'khoz mashiny, No 5, 1970, p. 42.

The Kherson combine factory, according to the directive of the All-Union society "Lekarsprom", issued an experimental batch of the MZS-1.8 machines (10 of them) for large-scale agricultural testing. The machines were distributed to specialized sovkhozes. In 1968, 300 hectares of rye were infected with the machines. Although machines were used differently on different farms depending on weather conditions, and chiefly on the organization of labor, the work done by one machine in the season varied from 14 hectares at the "Zhen'shen'" sovkhoz to 63 hectares at the sovkhoz "Bol'shoye Mozheykovo." The daily quota was 2 hectares at the "Zhen'shen'" sovkhoz and 8.7 hectares at the "Mostisskom" sovkhoz. The state tests and large-scale agricultural field testing showed that the MZS-1.8 machine for infection of rye with ergot considerably exceeded the indices set forth in the requirements of agricultural technology.

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Bioacoustics

USSR

UDC 534.7

REZNIKOV, A. Ye., Institute of the Biology of Development, Academy of Sciences USSR, Moscow

"The 'Acoustic Eyes' of the Dolphin"

Moscow, Priroda, No 11, 1972, pp 60-65

Abstract: Experimental data on the echolocation of dolphins obtained in work carried out by K. S. Norris et al and in research conducted in the USSR by Reznikov and others indicate that dolphins have acoustic eyes that are sensitive to reflected and emitted ultrasound radiation and form images of objects in the water. The fat pillow on the forehead of dolphins has the properties of a double acoustic lense that focuses ultrasound and produces a binaural effect, enabling the porpoise to perceive in tridimensional detail objects in front and above its head. The air sacs behind the fat pillow, functioning similarly to the retina of the eye, and presumably also the ears, to which ultrasound is conducted over intervening tissue, act as elements that aid in the perception of sound images. Sounds (of ultrasonic frequency) that enter the head of a dolphin directly through the ear openings are practically not perceived. A dolphin the eyes of which have been covered can locate food (pieces of fish) at the bottom of a reservoir after it has turned on its back.

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Hydrobiology

USSR

UDC 534.7

BEL'KOVICH, V. M., and REZNIKOV, A. YE.

"New Findings on Echolocation in Dolphins"

Moscow, Priroda, No 11, 1971, pp 84-90

Abstract: After briefly describing the structure and functioning of the echolocation apparatus of dolphins, the authors discuss recent tank experiments in which the animals were filmed while their sounds were recorded on tape. The experiments were designed to study the interrelation of probing signals with location situations and the dynamics of change in signals in space and time. The types, duration, and frequency of the various signals were determined. Attempts were made to discover whether the variety of situations encountered by dolphins affects the operation of their location apparatus. Several theories are advanced to explain how the animals recognize objects.

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Hydrobiology

USSR

REZNIKOV, A. Ye.

"'Acoustic Eyes' of the Dolphin"

Moscow, Priroda, No 10, 1971, pp 100-101

Translation: Besides its eyes, a dolphin may also use analogs of the eyes, the so-called "acoustic eyes," for purposes of hydroacoustic location. The frontal fat pad which focuses ultrasound may be regarded as an analog of the crystalline lens, cornea, and vitreous body.

The "lens"-pad forms acoustic images of the objects to be located in the region of the air sacs in back of the pad.* There are grounds for believing that these sacs can perceive acoustic images and function as retinas of the "acoustic eyes." Judging by the structure of the inner surface of the air sacs, which consists of epithelium of the cutaneous type, the acoustic images of objects are probably perceived by the dolphin as some forms of "spatial touch." The information

*Abstracts of papers read at the 23rd Scientific and Technical Conference of the Leningrad Institute of Aviation Instrumentation, Leningrad, 1970.
VII Vsesoyuznaya akusticheskaya konferentsiya. Tezisy dokladov (7th All-Union Acoustic Conference. Abstracts of Papers), Leningrad, 1971.

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USSR

REZNIKOV, A. Ye., Priroda, No 10, 1971, pp 100-101

that may be sent by the auditory organs and "acoustic eyes" to the central nervous system in the form of acoustic images and images with spatial structure, respectively, differs significantly from each other even though acoustic signals are used in both organs.

The relative location and structure of the ears and frontal fat pad suggest that the spatial acoustic images of objects to be located that appear in the body of the fat pad are also analyzed by the ears with the help of the binocular effect.

The existence of "acoustic eyes" in the dolphin has been confirmed by some experimental data, including the electrophysiological reaction to exposure of the fat pad to ultrasonic impulses.

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KEZNIKOV, B.I.

chemistry

COMPUTING THE STEADY PARAMETERS OF THE ABLATION
OF GLASSY MATERIALS

JPRS 56782
16 August 1972

Article by B. I. Keznikov, Leningrad, Izv. Leningradskogo
Sovetskogo Instituta imeni V. I. Lenina, Russian, No 255
1966, pp 60-64

(U.S.) The vitreous materials formed on the basis of silica
namely heating. Several reports [1-4] have been devoted to the
question of establishing the stationary parameters for the break-
down of vitreous materials. The most thorough review of the break-
problem has been conducted in report [5] where a solution to the

The system of boundary layer equations has been solved
under the assumption that gas above a surface which is breaking
down comprises a binary mixture of vapors from the material and
flow and friction of the circumferential gas. The values for the heat
parameter and dimensionless enthalpy of wall. After a solution
to the problem in a boundary layer, these values constituted
a viscous vitreous film. In a system of equations for preservation of
stable liquid with constant heat capacity and heat conduction but
with variable viscosity factor

$$M = \frac{h_{\text{wall}}}{h_{\text{ref}}} \left(\frac{T_{\text{ref}}}{T_{\text{wall}}} \right)^n$$

(1)

With consideration of the fact of the smallness of the
liquid layer's depth as compared with the depth of heated zone,
for a system of equations to the melt, we derived an approximate
analytical solution. As a result, the calculation of the steady
breakdown of vitreous materials has been reduced to solving a

- 1 -

[1 - USSR - A]

USSR

REZNIKOV, G. and TARNAI, K.

UDC: 6 21.374.387

"A Fast Amplitude-Digital Converter With High Resolving Power"

Moscow, Pribory i tekhnika eksperimenta, No. 2, 1971, pp 103-106

Abstract: The converter described in this article has 8192 channels, each 1.25 mV wide, uses a reference-voltage system, and is essentially an analog-digital interface. A block diagram and a fairly detailed explanation of its operation are given. The system is capable of operating in four modes: normal, gating, coincidence, and anticoincidence; it has two types of reference signal, one in the high energy range, the other in the low. The results of measurements made on the instrument are given in the form of curves; the devices used to make these measurements were developed by the Budapest Institute of Electronics and Precision Mechanics. These results agree closely with the results of theoretical computations made on an electronic computer. Members of the Budapest Central Institute of Physical Research, the authors thank their colleagues and the Obninsk FEI /expansion unknown/ for their assistance.

1/1

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--RESISTANCE TO SAPONIFICATION OF SULFOSUCCINIC ACID MONOESTER SALTS
IN THE PRESENCE OF MAGNESIUM IONS -U-
AUTHOR-(04)-REZNIKOV, I.G., BAVIKA, V.I., BOGACHEVA, S.F., POBORTSEVA,
L.A.

COUNTRY OF INFO--USSR

SOURCE--MASTO-ZHIR. PROM. 1970, 36(1), 20-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--SAPONIFICATION, ORGANIC SULFUR COMPOUND, SUCCINIC ACID,
MAGNESIUM SULFATE, CALCIUM COMPOUND, COPPER COMPOUND, DETERGENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--1989/0518

STEP NO--UR/9085/70/036/001/0020/0023

CIRC ACCESSION NO--AP0107123

UNCLASSIFIED

272 010
CIRC ACCESSION NO--AP0107123 UNCLASSIFIED PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESISTANCE TO SAPON. OF
SULFOSUCCINIC ACID MONOESTERS IN AN ALK. MEDIUM IS GREATLY INCREASED BY
ADDN. OF MG, CA, OR CU SALTS. IN COMPNS. CONTG. 12.5PERCENT ACTIVE
SUBSTANCE PARENTHESIS DI-NA SALT OF MONOALKYL SUCCINATE (ALKYL DERIVED
FROM SPERMACEI ALC.) (I) PARENTHESIS, 20PERCENT NA POLYPHOSPHATE,
1PERCENT NA SILICATE, 12-15PERCENT NA SUB2 SO SUB4, REST H SUB2 O, A
PART OF NA SUB2 SO SUB4 WAS REPLACED BY 4-8PERCENT MGSO SUB4. SAPON. OF
I IN SUCH A DETERGENT IN AN ALK. MEDIUM WAS 80-6PERCENT LESS THAN A
DETERGENT NOT CONTG. MGSO SUB4. CA AND CU SALTS HAD A SIMILAR ACTION.
WASHING EXPTS. WITH I ALONE AND WITH 8PERCENT MGSO SUB4 HAD 122 AND
130PERCENT, RESP., OF THE DETERGENT EFFICIENCY OF NA LAURYL SULFATE.

UNCLASSIFIED

1/2 027

UNCLASSIFIED

PROCESSING DATE--11DEC70

TITLE--ULTRA HIGH FREQUENCY PLASMA MULTIPLIER WITH EXTERNAL IGNITION -U-

AUTHOR--(04)--BRANDT, A.A., REZNIKOV, I.I., BOVIN, S.V., TIKHOMIROV, YU.V.

COUNTRY OF INFO--USSR

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SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. (USSR), NO. 2, P. 235-6
(1970)

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ULTRAHIGH FREQUENCY, PLASMA BEAM, FREQUENCY MULTIPLICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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2/2 027

CIRC ACCESSION NO--AP0141716

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF MEASUREMENTS OF
PARAMETERS OF A PLASMA FREQUENCY MULTIPLIER WITH AN EXTERNAL DIRECT
CURRENT IGNITION. THE OUTPUT POWER AND HARMONIC CONTENT ARE
INVESTIGATED.

UNCLASSIFIED

USSR

UDC 669.721.046.4

LYANDRES, M. B., SOLOMENTSEV, V. A., REZNIKOV, I. I., SOLOV'YEV, Yu. V.,
ENGEL', E. K.

"Automation of the Process of Dehydration of Carnallite in Fluidized Bed
Furnaces"

Avtomatiz. Proizv. Protsessov Tsvet. Metallurgii [Automation of Production
Processes in Nonferrous Metallurgy -- Collection of Works], Ordzhonikidze,
Ir Press, 1971, pp 78-80, (Translated from Referativnyy Zhurnal, Metallurgiya,
No 5, 1972, Abstract No 5 G244 by G. Svodtseva).

Translation: The production of dehydrated carnallite has been automated at
the carnallite shop of the Bereznikovskiy titanium-magnesium combine on the
basis of scientific research and planning-design work, allowing a significant
technical-economic effect to be produced and the productivity of labor to be
increased by 2 times.

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USSR

UDC 669.721.046.4

KARPOV, A. B., REZNIKOV, I. L.

"Kinetics of Dehydration and Hydrolysis of Magnesium Chloride During Dehydration"

Tr. Vses. N-i. i Projektn. In-ta. Alyumin., Magn. i Elektrokn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 69-76. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G189 by the authors).

Translation: The kinetics of dehydration and hydrolysis of $MgCl_2 \cdot 4H_2O$, $MgCl_2 \cdot 2H_2O$, and $MgCl_2 \cdot H_2O$ are studied. Based on the experimental data produced, the dehydration rate constants of these crystal hydrates and the hydrolysis rate constants for $MgCl_2 \cdot 2H_2O$ and $MgCl_2 \cdot H_2O$ are calculated. The apparent activation energies are calculated. Certain considerations concerning the mechanism of the process of dehydration of crystal hydrates of $MgCl_2$ are stated. 5 figs; 2 tables; 11 biblio refs.

1/1

Magnesium

USSR

UDC 669.721.046.4(088.8)

REZNIKOV, I. L., POLYAKOV, Yu. A., KHASIN, L. B., POBYATENKO, V. V.,
KOROTKOV, Yu. A., RUDAKOV, V. A., and DUNAYEV, D. V.

"Method of Dehydration of Magnesium Chloride"

USSR Author's Certificate No 272569, Filed 30/04/68, Published 27/08/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G181 P)

Translation: A method is suggested for dehydration of $MgCl_2$ by fusion.
To increase the productivity of the apparatus and improve the sanitary
conditions, the initial salt is pressed into a strip under a pressure of
over 600 kg/cm², ground, and classified, then the fraction of ground salt
over 1 mm in size is melted. The salt melt thus produced is agitated by
air.

Instrumentation and Equipment

USSR

UDC 669.721.046.4(088.8)

REZNIKOV, I. L., SOLOV'YEV, Yu. V., and SHCHEGOLEV, V. I.

"Multichamber Apparatus for Dehydration of Salts"

USSR Author's Certificate No 269008, Filed 17/05/68, Published 11/08/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G180 P)

Translation: This multichamber apparatus for dehydration of salts such as carnallite in a fluidized bed contains vertical chambers with gas distributing gratings, transverse barriers with flow apertures set above them, a charging device and a draining threshold for unloading the prepared material. To intensify the process and eliminate stagnant zones, the total area of the flow-through apertures is 3-4% of the area of the cross section of the chamber at the level of the drain threshold. To decrease carry-over of the material and provide for its zig-zag movement, the chambers are equipped with longitudinal barriers with flow-through apertures placed directly over the gas distributing grating.

1/1

USSR

UDC 669.721.472(088.8)

REZNIKOV, I. L., ZUYEV, N. M., IVANOV, A. B., POLYAKOV, YU. A., FRANTAS'YEV, N. A., TATAKIN, A. N., SOLYAKOV, S. P., and KARAVAYNIY, A. I., All-Union Scientific Research and Design Institute of Aluminum, Magnesium, and Electrode Industry, Solikamskiy Magnesium Plant

"Method of Preparing Refined Electrolyte for Magnesium Production"

USSR Author's Certificate No 259401, filed 4 Sep 68, published 15 May 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G134 P)

Translation: A method is proposed for preparing a refined electrolyte for magnesium production, which includes enrichment of a reversible electrolyte with chlormagnesium initial raw material and refining by means of electrolytic and heat treatment, and also with the help of reducing agents and gases. To increase the degree of refining of the electrolyte and improve the technological indicators, the reversible electrolyte is separated into several streams, one of which is fed to the beneficiation with chlor-magnesium raw material, and the remaining ones are added to the obtained chloride melt enriched with $MgCl_2$ after refining. The enrichment of reversible electrolyte with chlormagnesium raw material produces 25-50% concentration of $MgCl_2$ at melt temperatures of 450-650°. The concentration of $MgCl_2$ in the refined electrolyte is maintained at 10-25%. 1/1

- 30 -

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THE INTERACTION OF THE ACRIDINE DYES WITH DNA IN SOLUTION AND
INSIDE PHAGE PARTICLE -U-
AUTHOR-(04)-GABRILOVICH, I.M., ROMANOVSKAYA, L.N., ZENCHENKO, S.A.,
REZNIKOV, I.V.
COUNTRY OF INFO--USSR
SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 324-330
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BIOLOGIC STAIN, PHAGE, DNA
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CIRC ACCESSION NO--AP0122578
UNCLASSIFIED

USSR

REZNIKOV, L. M.

UDC 624.07:534.1

"On the Oscillations of Certain Systems With Nonself-Conjugate Boundary Conditions"

Tr. Dnepropetr. in-ta inzh. zh-d. transp. (Works of the Dnepropetrovsk Institute of Railroad Transportation Engineers), 1972, No. 139, pp 15-23 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V260)

Translation: Systems where the quasielastic coefficients in the boundary conditions are complex functions of the oscillation frequency are discussed. The forms of the free oscillations of such systems are not mutually orthogonal. The problem of forced oscillations is solved by expansion into series in terms of the forms of the free oscillations of a "close" system in which the real values of the quasielastic coefficients correspond to a fixed frequency. Additional reactive forces are determined from the corresponding equations. The accuracy of the results are discussed. An example of the acceleration on the convergence of the series is shown. Author's abstract.

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Construction

USSR

UDC 624.042.41:534.1

KORENEV, B. G., Doctor of Technical Sciences (Moscow Construction Engineering Institute imeni V. V. Kuybyshev) and REZNIKOV, L. M., Candidate of Technical Sciences (Dnepropetrovsk Department of the Institute of Mechanics, Academy of Sciences, Ukrainian SSR

"Random Cross-Wind Oscillations of Tower-Type Buildings With Dynamic Dampers"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 2, 1973, pp 7-11

Abstract: The present paper, which is a continuation of an article published earlier in the same journal (No 6, 1971), deals with the forced oscillations of tower-type buildings with an aerodynamically unstable shape of the cross-stream section, under the influence of random pulsations, in a subcritical wind-velocity zone in which the self-oscillations of the buildings cannot become stabilized. An investigation is made of the influence of nonlinear aerodynamic forces and a dynamic damper upon the oscillation parameters of the building. A numerical example is given. 1 figure. 11 references.

1/1

USSR

UDC 624.04:534.11

KORENEV, B. G., Moscow, REZNIKOV, L. M., Dnepropetrovsk

"Quenching of Vibrations of Tower Structures Under Seismic Disturbances"

Podol'sk, Stroitel'naya mekhanika i raschet sooruzheniy, No. 5, 1971, pp 1-5

Abstract: A method for reducing random vibrations of tower structures with the aid of dynamic dampers is discussed. Data are presented on the effectiveness of the damping of random vibrations of tower structures under seismic disturbances and recommendations made in a previous article by the authors on the optimization of the parameters of dynamic dampers are tested. The previous article presented exact and approximate methods for solving the problem of the vibrations of tower structures with two dynamic dampers under pulsations of the impact pressure of wind. The effectiveness of reducing vibrations of tower structures with the aid of two dynamic dampers in each of two mutually perpendicular planes is investigated and the parameters of the dampers are optimized from the condition of minimum dispersion of displacement of the upper end and the bending moment in the lower cross section of the structure. It is noted that the same dampers placed in a tower structure will reduce vibrations of the structure caused not only by seismic disturbances but also by pulsations in the impact pressure of wind, wind resonance and other dynamic effects.

1/1

~ 11 ~

REZNIKOV, M.L.

designer.

TECHNICAL TRANSLATION

FTIC-HT-23-1063-71

ENGLISH TITLE: System of Research and Experimental Organization in Yalta

FOREIGN TITLE: Sistema Organizatsii Issledovatel'skikh i Opytnykh Rabot na Yaltz

AUTHOR: ~~M. L. Reznikov~~, Deputy Chief Designer, and ~~Y. M. Stepanov~~, Deputy Director of the Experimental Shop

SOURCE: Standartcy I Kachestvo, No. 10, 1970, pp 33-35

Translated for FTIC by Leo Kanner Associates

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USSR

UDC 621.9.01.669.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

high accuracy, capable of operating under severe cutting conditions for long periods of time without replacement. Tool life can be increased if the tool industry is provided with high quality steels and alloys. Soviet scientists have created alloys with high strength characteristics and high heat resistance. The workability of alloys and steels can be improved by the use of various methods based on ultrasonics, electric contact and induction heating, application of small electric currents to the cutting zone, etc. These methods allow the life of a cutting tool to be increased by 2 to 5 times, increasing the cutting speed and productivity of processing. Part quality can be improved by using tools of natural and synthetic diamonds, as well as elbor.

The present work familiarizes the reader with research conducted into the physics of the cutting process, materials for cutting tools, optimal cutting modes and methods of improving the quality and workability of parts.

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USSR

UDC 621.9.01.660.018.25

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USSR

REZNIKOV, R. A.

"Solution of Problems of Structural Mechanics on an Electronic Computer"
(book) 2nd Edition, revised and supplemented

Moscow, Publishing House of Literature on Construction, 1971, 311 pp

TRANSLATION OF APPENDIX:

Basic Characteristics of Some Domestic Computers

Name of Machine	Computation Rate (average no. of operations/sec. with 1000 addresses in instruction)	Capacity of Working Storage	Memory Unit					Number of Bits	Number Representation		Punch-Card Input & Output	Power Required in kw	Space Requirement in m ²	Foot-note No.
			Buffer (on magnetic drums)		External (on Magnetic Tape)				Floating Point	Fixed Point				
			Capacity (numbers)	Computation Rate (nos. per sec.)	Number of Tapes	Capacity of 1 tape (numbers)	Computation Rate (nos. per sec.)							

USSR

REZNIKOV, R. A., Publishing House of Literature on Construction, 1971, 311 pp

Minsk-22	3000	2	8192	11	—	—	16	100000	2500	37	11	11	11	10	80	1.6
Minsk-2	3000	2	4096	1	—	—	4	100000	2500	37	1	1	no	4	50	9
Mir-2	1000	—	~2000	1	—	—	none	—	—	any	1	no	1	1.5	20	2, 4, 5, 7, 8, 9
Mir	3000	—	~2000	1	—	—	1	—	—	1	1	1	1	1	10	3, 7, 8
Nairi-3	10000	2	4096	1	—	—	1	—	—	37	1	yes	1	2.5	20	2.7
Nairi-2	2000	2	2048	1	—	—	1	—	—	35	1	1	1	1.6	20	3.7
Nairi	2000	2	1024	1	—	—	1	—	—	35	1	1	1	1.6	20	3.7
Promin'-M	500	1	200	1	—	—	1	—	—	5	1	no	1	0.5	10	3
										decimal						